

Ocean Sciences in the Fiscal Year 2005 Budget

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HIGHLIGHTS

- **National Oceanic and Atmospheric Administration (NOAA)** – Overall NOAA funding would decrease by \$308.3 million (down 8.4 percent) in the FY 2005 budget request. The portion of NOAA funding identified as R&D would decline by \$7 million to total \$611 million.

- **National Science Foundation (NSF)** – Funding for the Geosciences Directorate (GEO) would increase 2.2 percent in the FY 2005 budget to total \$728.5 million. In contrast to the previous year, the Ocean Sciences Division would see a similar increase (up 2.0 percent) to total of \$329.3 million in FY 2005 (see Table II-7).

Department of the Navy – Navy basic research (“6.1”) would see a decrease of \$7.1 million (down 1.4 percent) from the FY 2004 funding level. This decrease is largely due to cuts to the University Research Initiatives program which was devolved from the Defense-wide RDT&E accounts to the Navy in FY 2004 (see Table II-5).

U.S. Geological Survey (USGS) – The budget for USGS proposes a \$18.2 million cut for the agency. The Geologic Hazards, Resources, and Processes account which funds coastal and resource studies, would decrease by \$13.4 million (down 5.4 percent) for a total of \$220.7 million.

INTRODUCTION AND POLITICAL ENVIRONMENT

Oceans cover nearly three-quarters of our Earth’s surface, and are the primary driver of weather and climate on Earth. The oceans are a vital part of U.S. national and homeland security, providing critical information for Navy operations, and are a significant element in

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international trade and economic development. In addition, over half of the U.S. population currently lives where the ocean meets the land, an area that comprises less than one fifth of the U.S. land area. These fertile coastal zones provide food, jobs, recreational opportunities, and natural resources.

Today, federal deficits are reaching record levels, national security issues are placing new demands on federal science and technology budgets, and the environmental and population pressures on our oceans and coasts are continuing to grow. Basic research in the ocean sciences is feeling the squeeze and still, a host of important policy questions must be answered: How do we protect our shores and coastal communities from the threat of terrorism? How can we implement management regimes that meet conservation goals, sustain coastal economies and ensure adequate food supplies around the world? How do we maintain the health and well-being of the American public and minimize coastal hazards? In order to address these emerging issues, protect our ocean resources, and better understand important climate phenomena, more information is needed about the oceans and processes within.

U.S. research programs at more than a dozen Federal agencies, including NOAA, NSF, the National Aeronautics and Space Administration (NASA), and the Navy, contribute to our understanding of marine environmental systems along the coasts and in the deep ocean. These agencies are increasingly turning towards cross-cutting interagency initiatives such as the National Oceanographic Partnership Program (NOPP) to better coordinate ocean science research. NOPP has become the vehicle for development of implementation plans for an integrated ocean and coastal observing system which will be used to collect the biological, chemical, physical, and geological oceanographic data necessary to ensure national security, facilitate safe and efficient marine operations, manage living resources, detect and predict climate variability, preserve and restore healthy marine ecosystems, mitigate natural hazards, and ensure public health.

NATIONAL SCIENCE FOUNDATION (NSF)

NSF is the largest supporter of basic ocean science in the United States, funding major programs as well as individual investigator-initiated projects. In recent years there has been a strong push from Congress to double NSF funding. While budget requests from the Administration

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have fallen well short of that goal, Congressional supporters continue to supplement the President's request to boost basic research funding. For FY 2004, appropriators provided a 4.6 percent increase for NSF's Research and Related Activities (R&RA) account as opposed to a 1.2 percent increase recommended by the Administration. For FY 2005, the Administration has again requested only a minimal increase for NSF of 3.0 percent (\$167.2 million). Of that total, funding for R&RA would increase 4.7 percent to \$4.5 billion (see Table II-7).

Under the President's request, geosciences funding in FY 2005 would total \$728.5 million, an increase of \$15.4 million (2.2 percent) over the FY 2004 funded level. Unlike FY 2004 where the increase was directed towards atmospheric research, this increase is split between the directorates. Funding for the ocean sciences division (OCE) would increase 2.0 percent under this proposal to \$329.3 million.

Within the OCE division, the budget requests \$120.4 million for Ocean Section research support, an amount equal to the FY 2004 funding level. This funding would support a project office to coordinate activities related to ocean observations and planning for ocean observatories, as well as continuation of an initiative studying the linkages between the oceans and human health. This funding would also support individual investigator research in areas such as marine biocomplexity, carbon cycling, quantitative oceanography, and sustained observations of deep ocean and coastal systems.

The Integrative Programs Section of OCE would receive \$120.2 million (up 1.8 percent). Funding through this section supports education, ship operations, upgrades, construction, instrumentation, technical services, and oceanographic facilities, new technology development, ocean observatories and observation systems, and the National Oceanographic Partnership Program (NOPP). Priorities identified on the President's budget include: replacement of deep submergence capabilities; development of concept designs for new Regional Class vessels as part of the Federal Oceanographic Facilities Committee's (FOFC) plan for renewal of the academic fleet; operation of the academic research fleet; enhancement of instrumentation for sea-going scientists; ship-improvement programs; and the design of infrastructure to support seafloor observatories.

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The Marine Geosciences Section would receive \$88.6 million of the OCE funding request, an increase of \$4.4 million (5.2 percent) over the FY 2004 level. Funding is requested for studies of continental rifting process, fluid flow in ocean crust and continental margin sediments, dynamics of the ocean mantle, and increased use of observatory instrumentation and experiments at integrated ridge crest study sites.

The FY 2005 budget request includes several ocean science-related projects in the Major Research Equipment and Facilities Construction (MREFC) account. These new projects include the Scientific Ocean Drilling Vessel, \$40.8 million in FY 2005; the Ocean Observatories Initiative, \$24.8 million projected for FY 2006; and the Alaska Regional Research Vessel, \$49.3 million in FY 2006. (For more on NSF, please see Chapter 7.)

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

NOAA's FY 2005 budget request totals \$3.4 billion, a decrease of \$308.3 million (down 8.4 percent) from the FY 2004 funding levels. Funding for NOAA R&D programs included in this amount totals \$611 million, a decrease of \$7 million from the FY 2004 amount. While this represents only a 1.1 percent decrease, it signifies the continuation of a strong downward trend in NOAA R&D, and is a decrease of 15.6 percent from the FY 2004 budget request (see Table II-14).

Oceanic and Atmospheric Research (OAR): The budget request for OAR, which funds the bulk of NOAA research, would decrease by \$53.5 million (down 13 percent) to total \$360.7 million in FY 2005. The OAR budget includes severe cuts to the ocean and climate research programs. Decreases in the request include the National Sea Grant College Program (down \$4.5 million); the National Undersea Research Program (down \$1.0 million); the Ocean Exploration program (down \$2.7 million); and the Climate and Global Change Research Program (down \$10.3 million).

The OAR budget is organized into several main themes for FY 2005, which include:

- **Climate Research:** NOAA requests a total of \$183.4 million for Climate Research, an increase of \$13.5 million over the FY 2004 estimated level. The budget request begins to transition funding away from the Climate and Global Change Program to the Administration's

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Climate Change Research Initiative (CCRI; \$50.6 million). Components of the initiative include: programs of observations on the influence of aerosols on climate; continuing implementation of an ocean climate observing system; and continued implementation of a carbon cycle atmospheric observing system. (For more on CCRI, see Chapter 16.)

- **Oceans, Coastal and Great Lakes Research:** OAR has requested \$103.5 million for this activity, a decrease of \$51.4 million (down 33.2 percent) from the FY 2004 funding level. Approximately half of these cuts (\$22.9 million) come from the Ocean, Coastal and Great Lakes Partnerships, where all congressionally added projects would be terminated.

National Ocean Service (NOS): The primary mission of NOS is coastal stewardship, however the NOS budget does support a variety of R&D activities. For FY 2005, the funding request for NOS totals \$394.3 million, a decrease of \$212.0 million from FY 2004 funded levels (down 35 percent). Cuts in this account again include all congressional add-ons funded in 2004, but the extramural research programs at NOS would also take a significant hit under this budget request.

The request includes \$8.7 million for the Coastal Ocean Program, a program that supports peer-reviewed multi-disciplinary research to assess three national issues: coastal ecosystem oceanography, cumulative coastal impacts, and harmful algal blooms/eutrophication. This request is \$12.3 million below the FY 2004 enacted level and is \$10 million below the Administration's FY 2004 budget request.

The FY 2005 budget request also contains significant cuts for the Oceanic and Coastal Research program. This program would be funded at \$10.5 million, a decrease of \$9.5 million from the FY 2004 level.

The NOS budget request also provides funding for the Ocean Resources Conservation and Assessment program, which directs research programs to provide scientific information to policymakers on the protection and sustainable use of ocean and coastal areas. Included in this program is \$72.8 million for the Ocean Assessment Program, down \$60.8 million from the FY 2004 level. This reduction in funding is due primarily to the proposed termination of congressionally requested and one-time-only projects.

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In addition, the NOS budget requests \$16.4 million for Estuarine Research Reserves, equal to the FY 2004 level, and \$36.2 million for the Marine Sanctuary Program, a decrease of \$18.0 million from last year's level. An additional \$3 million (down \$1.5 million) has been requested to inventory and assess existing marine protected areas.

National Marine Fisheries Service (NMFS): The total budget request for NMFS for FY 2005 is \$735.2 million, a decrease of \$24.9 million from the FY 2004 estimated level. Within this amount \$183.3 million is provided for science and technology within the Fisheries Research and Management Services account, and \$9.5 million is provided for cooperative research. In the Protected Resources Research and Management Services account the Administration requests totals \$17.9 million for science and technology. This funding would support research on specific fishery issues, including Atlantic salmon, Pacific salmon, sea turtles, and marine mammals.

National Environmental Satellite, Data, and Information Service (NESDIS): In FY 2005 NESDIS would receive a total of \$897.9 million. Funding of \$414.1 million is included in the budget request for continuation of the Polar Orbiting Systems program, which includes National Polar Orbiting Environmental Satellite System (\$307.6 million) and Polar Orbiting Environmental Satellites. NPOESS will provide military and civilian meteorological and environmental satellite coverage.

Office of Marine and Aviation Operations: A total of \$155.6 million has been requested for the Marine Operations and Maintenance account in FY 2005, an increase of \$37.3 million over the FY 2004 funding level. This account includes \$72.9 million to meet the data acquisition needs of NOAA line offices, including days-at-sea for the research programs, and continues the FY 2004 request of \$2.5 million to outsource with UNOLS for ships in the Pacific to support NOAA programs. (For more on the NOAA budget, please see Chapter 13.)

DEPARTMENT OF THE NAVY

The Office of Naval Research has historically been one of the largest supporters of oceanographic research in the federal government, with the bulk of that support coming from the "6.1" basic research account. In FY 2005, the budget request is \$477.0 million for "6.1" basic research, a

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decrease of \$7.1 million (down 1.4 percent) from the FY 2004 funding level (see Table II-5). This funding cut comes from the University Research Initiatives line (down \$8.0 million) which prior to FY 2004 was funded through Defense-wide RDT&E accounts. Other funding lines in the “6.1” account include Defense Research Sciences, \$375.8 million (up \$0.5 million) and In House Laboratory Independent Research, \$17.7 million (up \$0.5 million).

The Navy’s request for “6.2” applied research is \$564.1 million in FY 2005, a decrease of \$159.6 million (down 22.1 percent; see Table II-6). Within the applied research account \$48.5 million was requested for Ocean Warfighting Environment Applied Research (down \$13.8 million); \$64.1 million was requested for Undersea Warfare Applied Research (down \$12.7 million), and \$48.0 million was requested for Mine and Expeditionary Warfare Applied Research (up \$0.1 million).

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

For the fifth year in a row, the Administration’s budget request has included an increase for NASA. In FY 2005, the request totals \$16.2 billion, a 5.6 percent increase over the FY 2004 level (see Table II-12). However, the request for the Earth Science account has shown a decrease again this year. The Earth Science account request totals \$1.5 billion in FY 2005, a decline of \$128 million. This request is split between Earth System Science, \$1.4 billion, and Earth Science Applications, \$77 million, and includes \$141 million (up 36 percent) for the NPOESS Preparatory Project under development in partnership with NOAA and the Department of Defense (DOD); \$42 million for the Landsat data continuity mission; and \$54 million for the Climate Change Research Initiative, making NASA the largest contributor to the interagency Climate Change Science Program (CCSP; see Table I-10). (For more on NASA, see Chapter 10.)

U.S. GEOLOGICAL SURVEY (USGS)

The budget request for the Interior Department’s U.S. Geological Survey in FY 2005 is \$920.6 million, a decrease of \$18.2 million from FY 2004 enacted funding. The Geologic Hazards, Resources, and Processes account, which funds coastal and resource studies, would decrease by \$13.4 million to total \$220.7 million. (For more on USGS, see Chapter 13.)

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ENVIRONMENTAL PROTECTION AGENCY (EPA)

The budget request for the EPA totals \$7.8 billion, a decrease of \$576 million from FY 2004 funding levels (down 6.9 percent; see Table II-17). The request for EPA's Office Science and Technology totals \$689.2 million for FY 2005, a decrease of \$92.5 million (down 11.9 percent) from the FY 2004 appropriated level.

In FY 2004 EPA had a Strategic Goal entitled Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems. However, for FY 2005 this Strategic Goal has been eliminated and science funding has been apportioned throughout the new Strategic Goals as follows: Clean Air and Global Climate Change, \$205.8 million; Clean and Safe Water, \$102.2 million; Land Preservation and Restoration, \$9.1 million; Healthy Communities and Ecosystems, \$321.6 million; Compliance and Environmental Stewardship, \$50.5 million. (For more on EPA, see Chapter 13.)

DEPARTMENT OF ENERGY (DOE)

The DOE Office of Science request for FY 2005 includes a total of \$501.6 million for Biological and Environmental Research, a decrease of \$139.9 million from the FY 2004 funding level. The request includes funding for the Climate Change Research program at a level near the FY 2004 request of approximately \$143.0 million (see Table II-11). (For more on BER, see Chapter 19. For more on the DOE budget, see Chapter 9.)